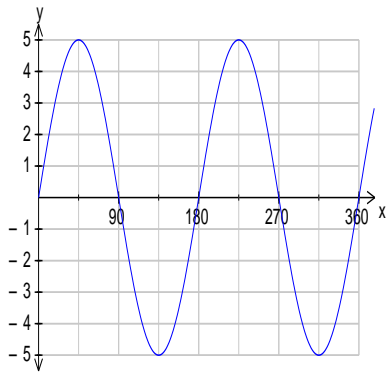


National 5

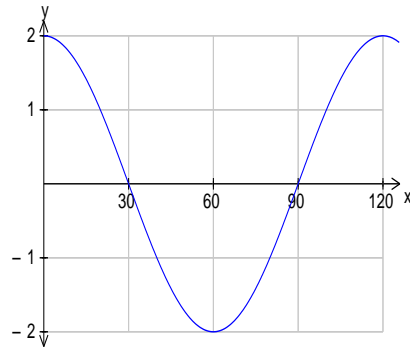
Homework RE18

1. Find the equation of each of these trig graphs.

(a)



(b)



2. Simplify, leaving your answer in index form:

(a) $3^3 \times 3^2$

(b) $x^{1/2} \times x^{3/2}$

(c) $a^5 \div a^{-2}$

(d) $(a^3)^2$

(e) $\frac{a^2 \times a^4}{a^{-3}}$

(f) $\frac{p^{1/2} \times p^{3/4}}{p}$

3. Evaluate:

(a) 2^{-3}

(b) $8^{2/3}$

(c) $81^{3/4}$

(d) $27^{-2/3}$

4. Express with a rational denominator:

(a) $\frac{5}{\sqrt{3}}$

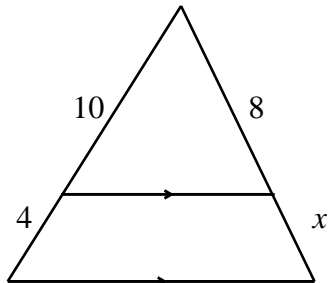
(b) $\sqrt{\frac{4}{9}}$

(c) $\frac{15}{2\sqrt{5}}$

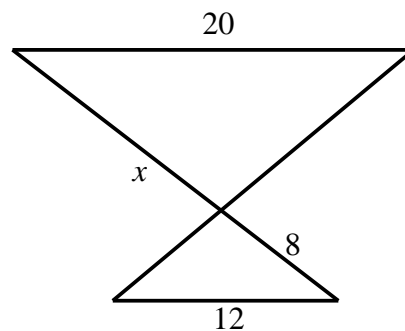
(d) $\sqrt{\frac{3}{24}}$

5. In each of the following find the value of x .

(a)

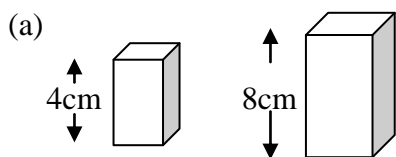


(b)



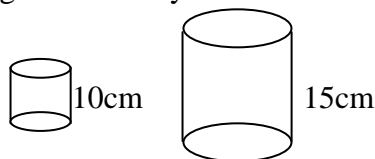
6. The hypotenuse of an isosceles right-angled triangle measures 24cm. Calculate the perimeter of the triangle.

7. Pairs of mathematically similar containers are shown below.

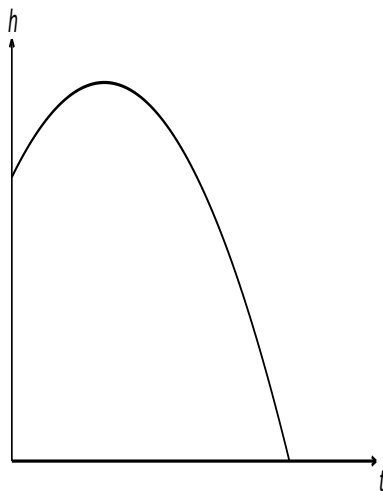


The volume of the small cuboid is 106cm^3 . Find the volume of the large one.

- (b) The weight of the small container is 1.4kg. Find the weight of the larger one if they are made of the same material.

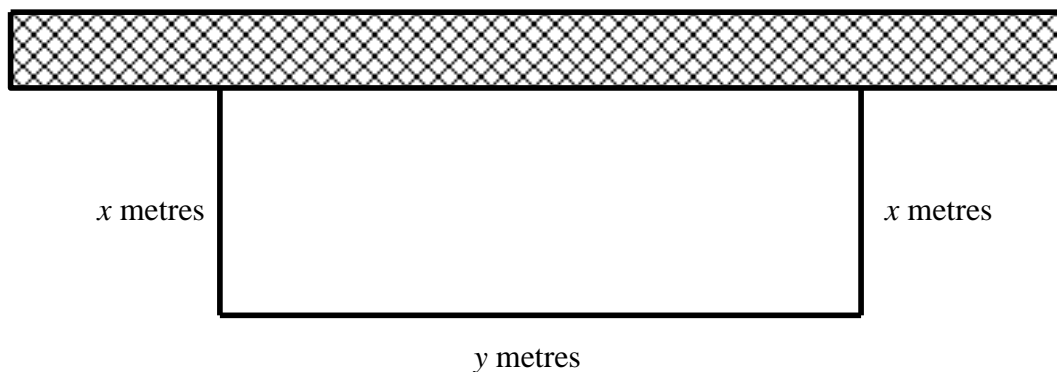


8. The diagram shows the path of a flare after it is fired. The height, h metres above sea level, of the flare is given by $h = 48 + 8t - t^2$ where t is the number of seconds after firing.



Calculate, algebraically, the time taken for the flare to enter the sea.

9. The diagram shows a large rectangular pen to hold sheep. One side of the rectangle is a wall and the other three sides are made of fencing. The total length of fencing is 200 metres.



10. (a) Remove brackets and collect like terms $3a - 2b - 2a - 5b$.
 (b) Solve algebraically the equation $2x^2 - 9x - 5 = 0$.
 (c) Solve algebraically the equation $\frac{x}{2} - \frac{x+1}{3} = 4$.